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A

TREATISE

ON

FOREST-TREES.

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By WILLIAM WATKINS,

Of TRINITY-HALL, *Cambridge*; and
Curate of HAY, *Breconshire*.

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June 25 1906
D

To the Right Honorable

AUGUSTUS, Earl of *Berkeley*,

Viſcount DURSLEY,

Ranger of *Dean-Foreſt*,

Lord Lieutenant and Cuſtos Rotulorum for *Glouceſterſhire*,

Knight of the antient Order of the THISTLE.

My Lord,

I Hope your Lordſhip will pardon this Liberty; ſince the Pleaſure you take in ſupporting all Endeavours which aim at public Utility, is the Occaſion of it.

Your

Your Lordſhip ſhews this in your great Care of the Foreſt of *Dean*: And a greater Specimen cannot be of your Lordſhip's having your Country's Intereſt at Heart, than your moſt earneſt Endeavours to quell thoſe Rebels, who would have left us without a Patrimony, and ſaid to us,

——*Veteres migrate Coloni.*

Were my Countrymen as ſenſible of the great Services your Lordſhip has done them, as myſelf, they would with Pleaſure embrace every Opportunity of returning their moſt grateful Acknowledgements, as each old Man may apply to himſelf,

O! fortunate ſenex, ergo tua rura manebunt.

Now, my Lord, they enjoy the Fruits of their Labour in Peace and Plenty;

Plenty; and when their grey Hairs are brought (not with Sorrow) to their Graves, their Mouths will bleſs you, from the Overflowings of their Hearts.

I am,

MY LORD,

(with the profoundeſt Reſpect)

YOUR LORDSHIP'S

Moſt Obedient,
Humble Servant,
William Watkins.

TO THE

READER.

WHAT gave Occasion to the following Pages, was, the continual Devastation of Wood in this Kingdom; and a few Words with a very worthy Gentleman, concerning the Consequence such a Destruction would soon occasion to this Nation in general. This short Piece was put together in a great Hurry; for which Reason, together with the Hopes of its being of some Service to my Country, will, in a great measure, deserve a softening Condemnation for its Faults. The Reader is humbly desired to look upon the Quotations in the Margin, with that Pleasure, the Author felt in reading them; or, at least, not as Pedantry.

The Culture of each Tree is what I have gathered from undeniable Experience myself, and from such Authors, as I am fully satisfied, may be depended on.

Lately Publiſhed,

In One large VOLUME FOLIO,

THE Gardener's Dictionary; containing the Methods of Cultivating and Improving the Kitchen, Flower, Fruit and Pleaſure Garden: Wherein all the Articles contained in the former Editions of this Work, in two Volumes, are diſpoſed in one Alphabet; with the Addition of a great Number of Plants.

The Sixth Edition; carefully reviſed, and adapted to the preſent Practice. By PHILIP MILLER, F. R. S. Gardener to the Worſhipful Company of Apothecaries, at their Botanic Garden in *Chelſea*; and Member of the Botanic Society at *Florence*.

——*Digna manet divini gloria ruris.*
Virg. *Georg.*

Printed for the Author; and Sold by *John* and *James Rivington*, in St. *Paul's Church-Yard*.

A

TREATISE

ON

FOREST-TREES.

IT is Matter of Wonder, that Planting Foreſt-Trees has been ſo much neglected of late Years, that too many Gentlemen of Eſtates, ſhould, inſtead of amuſing themſelves with this profitable, as well as innocent Recreation, be doing nothing but ſquandering away their Time and Fortune in idle and unſatisfactory Pleaſures. I will appeal to any reaſonable Body, whether five or ſix Guineas wantonly thrown away in an Evening's Debauch, (a Trifle, when Gaming is included) will not enable a Man to employ as many poor Peaſants to plant ſo many hundred Trees? The Pleaſures ariſing from each ſo very wide as to bear no manner of Compariſon.

Thoſe ariſing from the former, are, at beſt, but Jollity and inconſiſtent Mirth, for a ſhort Duration; afterwards too often, and too ſoon, broken Fortunes, and what is much worſe, broken Conſtitutions, and inſufferable Remorſe. *Thoſe*, from the *latter*, almoſt *infinitely ſubſtantial*. For, next to the actual Worſhip of that great God, by *whom* we *live*, *move*, and have *our Being*, ſuch an Amuſement muſt be highly acceptable with *Him*, as well as recreative to *ourſelves*. Indeed this Sort of Work does not fall much ſhort of actual Worſhip; for every thinking Perſon, when thus employed, cannot help reflecting on the adorable Goodneſs of the *Author* of *Nature*, in the amazing Syſtem of Vegetable Creation; every Faculty muſt be enlarged, every Idea exalted, when he thinks on that Artiſt who has ſo wonderfully formed all Plants, from the Cedar *in Lebanon*, to the *Hyſſop* that *ſpringeth* from *beneath the Wall*, with ſuch Order and Regularity! When he obſerves the Verdure of their Cloathing, he muſt acknowledge infinite Wiſdom, who gave them this chearful Colour, that, though his Eyes are ſurprized, they might not be dazzled! If he anatomizes them, ſhall he not find in them a Fabric analogous to his own? A Man who thrives in ſuch perpetual Verdure, is in no Danger of becoming *David*'s Fool, who ſaid in his *Heart*, *there is no God*.

The

The Advantages ariſing from Planting are indiſputable, both in regard to public and private Oeconomy: To the firſt, as it muſt render our Kingdoms very weak and defenceleſs without it. While it grows, it is the cheapeſt Standing Army; when cut down for its proper Uſe, our beſt naval Force. The Sea is our great * Fortification, but it is the Oak that renders it impregnable. I wiſh we may never want this Support! Another public Benefit, accruing from it, is Trade; for ſuppoſing the moſt profound Tranquillity in Church and State; that we were certain no Enemy would ever invade our Property, and that we had no Occaſion for Ships of War; yet, how convenient, nay how neceſſary for the Welfare of this Nation, and its Individuals, is Traffic? Without Timber, we muſt have been without Ships; and without Ships, Conveniencies could not be had from *Abroad*, nor could thoſe Fruits of our Induſtry, which we can very well ſpare, be exported into foreign Countries. Suppoſe further, that we had no need of either Ships of War, or Commerce; that we wanted not the firſt to guard us, nor the ſecond to enrich us, and that we had ſufficient to anſwer the Neceſſaries and Conveniencies of Life, at Home. Suppoſe even this; it muſt be granted, ſuch Things muſt

* Victrices pelago naves ——— Jac. Vanierii Prædium Ruſt. 24.

be conveyed from Town to Country, from Country to Town, and from one Town and Country to another. How are they to be carried? Alas! Animal Machinery is weak and tedious; in lieu of which, Providence, of his infinite Goodneſs, has given to Man Underſtanding, by which means he can contrive Methods of immenſe Mechaniſm, to ſupply the Inability of his own. Such eſpecially are Ships. Conſider the Uſe of a ſmall one, when by the Help of ſix or ſeven Horſes, and four Men, two hundred and fifty two thouſand (or thereabouts) Pounds Weight can be towed. If this Weight be diſtributed into Carts, and comparing one with another, the different Expence is eaſily ſeen. A Load weighing three thouſand Pounds, is as much as three Horſes can draw for any Length of Time; if then two hundred fifty two thouſand be divided by three, the Quotient will be eighty four times three thouſand; therefore, in order to carry this Load by Land, there would be wanting eighty four Carts, as many Carters, and two hundred fifty two Horſes. The Advantage *here* is great; and yet but ſmall, in Proportion to the two former, viz. *Ships* of *War*, and *Trade*. Then, let us conſider the Inconvenience of bad Roads ſuch Land Carriage would occaſion.

It is very plain nothing can redound more to public Utility, than the Increaſe of Tim-

ber; which is Reaſon ſufficient, why Owners of Eſtates ſhould improve them by planting: But more eſpecially when ſo cloſely connected with their own Intereſt, as will preſently appear.

As I hinted before, it is preſumed the beſt Way of expending Money, or at leaſt better than in unneceſſary Diverſions, or which is much worſe, in criminal Pleaſures. The Man who lays out his Money this Way, does the greateſt and trueſt Charity, I mean, employ the *poor Induſtrious*: He has a healthy, innocent, and beneficial Amuſement; the Sweets of an undiſturbed Repoſe; and the happy Reflection of a Life well ſpent. The Proſpect of a riſing Proviſion for Poſterity. †

And all theſe not by Fits and Flights, but by a continual growing Certainty of each ſucceeding Day's adding to the former's Happineſs. A Happineſs better felt than expreſſed; and which, none but thoſe who have experienced, fully know. Oh intrinſic Pleaſure! where a Man can, by ſcattering a few Seeds, or ſetting a few Twigs, as it were, lay in Store for Poſterity ſo many Pounds. Oh happy Man! that walks meditating in the refreſhing Grove his own Hands have raiſed, free from the ſcorching Beams

† —— Seris factura nepotibus umbram. *Virg. 2 Geor.*
——To late Poſterity
Adjourns its Shade. ——

Beams of that great Luminary the Sun; ſhadowed with the Certainty of future Riches; and over-ſhadowed by that *Sun* of *Righteouſneſs*, who approves the Innocency of his Hopes. If there were nothing of Profit in Planting, ſurely the Pleaſure of ſeeing the Fir, the Pine, the Cedar, *&c.* riſing gradually into an immortal Verdure; the *Simplex Munditiis* of the deciduous Wilderneſs, ſeemingly undeſigned, muſt give Serenity, even to perplexing Thought. ‖

It is too often the Caſe, where the Heir to a great Eſtate is, either the modern fine-Gentleman, or the down-right Country 'Squire, the fine-Gentleman inſignificates himſelf at Plays, Routs, Ridottos, *&c.* the 'Squire, with his Father's Butler, in the Kitchen at home, or in the Alehouſe abroad. Both idle Expletives; both impairing their Healths, and both impoveriſhing their Eſtates: Both having a Power to invigorate the one, and improve the other.

No one would chuſe to be deemed mad enough to ſay, that as his Anceſtors made no Plantation to his Advantage, he would make none for the Benefit of his Succeſſors. That he himſelf cannot live long enough to enjoy

—— ‖ O qui me gelidis in vallibus Hæmi
Siſtat, & ingenti ramorum protegat umbra. *Virg.* 2 *Geor.*

—— In Vallies cool
Who places me, and covers me with Shade
Of thickeſt Trees, imbow'ring.

enjoy the Profits from one, therefore would not go about it, for the Good of his Poſterity. Such a Man may as well ſay, Becauſe I cannot enjoy my Eſtate when dead, therefore am reſolved to ſpend it before I die; what is Poſterity to me? And, as the Gentleman in Mr. *Addiſon's Spectator* ſaid, "You talk of doing for Poſterity, I wiſh I "could ſee Poſterity do ſomething for us!"

The Uſes of Timber are very numerous, every body knows, without it we could not build Houſes to live in. But for this we could not well paſs and repaſs over Rivers, hold an Intercourſe with one another, lend and borrow, buy and ſell the Neceſſaries of Life. Does it not ſuſtain the Weight of the largeſt Structure with ſuch a firm Coheſion, as is not to be obtained from the Solidity of Earth itſelf? When put into Motion by mechanic Laws, (though they ſeem unmanageable) help the Weakneſs of human Power, and perform more Work in an Hour, than formerly could be expected to be done in Months? 'Tis therefore very unaccountable Men will neglect improving ſo great a Benefit.

It very often happens, that a Man plants a Tree, and lives, tho' not very old, to uſe it, or reap the Benefit thereof himſelf. Mr. *Bradley* mentions, in his Improvement of Planting, to have heard of Aſh Trees of forty Years Growth from the Seed, ſold for twenty-

twenty-five Pounds each. Other * Authors, that a Man planted ſo much Aſh in his Life Time, as was valued at fifty thouſand Pounds.

I heard of a Man who was married in the twentieth Year of his Age, at which Time he planted a thouſand Elms: Soon after he had a Daughter, who married when ſhe came to be twenty Years of Age; the Father then cut down the thouſand Elms, ſold them for a thouſand Pounds, and portioned his Daughter with the Money.

I knew ſome few Gentlemen, who have ſet Acorns with their own Hands, which now are fell for Timber; namely, Sir *Humphrey Howarth*, Member in Parliament for *Radnorſhire*. He told me, that he had ſet the Acorns himſelf, and that moſt of them are now grown to Timber of twenty Inches ſquare. He is not ſo very old, but that his Neighbours may, with all human Probability, expect the great Happineſs of his continuing amongſt them many a happy Year.

The very worthy Repreſentative for *Herefordſhire*, Mr. *Cornwall*, of *Mochus-Court*, ſet a great many Acorns within his Park, and tho' not many Years ſince, they are now in a very thriving, promiſing State, and will, in very few Years in Compariſon of thoſe I wiſh the generous Planter, be as large as any now ſtanding within the County. All this

* Evelyn *and* Bligh.

this is ſufficient Encouragement for every landed Eſtateſman, to *go and do likewiſe*.

There is ſuch a vaſt Quantity of Timber daily cut down, and very little raiſed in its Stead. A very deplorable Circumſtance, and muſt ſoon end in an utter Extirpation of the Species, unleſs the winged Creation, ſeemingly as if they knew the Danger they are like to come to for want of ſuch Suſtenance, ſhould give us new Hopes, by conveying the Acorns from the departing Tree, to the kind Repoſitory of the Earth. Man does not ſeem fond of doing it. Can we ſufficiently adore the Wiſdom of Providence, who hath formed the Seeds of the Aſh, and of ſeveral other Trees, with Downe and Wings, that they may take Flight, die, and revive again, and grow to a more honourable State; which otherwiſe we may preſume would die, and riſe no more? And not praiſe him, who, when the ſtormy Wind, fulfilling his Word, diſunites the Acorn from its tender, ſapleſs Cup, giving it a gentle Remove to its Mother Earth; covers it with the falling Leaves, and cauſes it to vegitate, as if carefully ſet with the utmoſt Induſtry of Man. Let us learn from hence, that Providence, who, tho' of his great Goodneſs, takes care to propagate every Individual that is abſolutely neceſſary for Man's Support (as in this Inſtance of Wood for Fire and domeſtic Uſes) yet, will by no means indulge

us with the Conveniencies of Life, unleſs we ſtrive to procure them by our Induſtry. But ſo far are we from procuring Conveniencies by our Induſtry, that were it not for the wonderful Care of the Author of Nature, we ſhould in all Probability be ſoon deſtitute of the Neceſſaries of Life. What will become of thoſe Countries which have no other Fuel than Wood, when that is entirely deſtroyed, as daily Experience convinces us we have Reaſon to fear, owing to ſuch Devaſtation of it. *England* will ſoon be ſuch a Land as *Titus Livy* mentions, " a Land without " Wood." *

The Expence attending Planting is what all Eſtates can afford. There is no Soil however poor, wet or dry, but might be made productive of ſome kind of Wood. The Deity has diverſified the Species of Plants, in Proportion to our different Neceſſities, and the Variety of Soils. So that no Man has Reaſon to complain of the Sterility of the Land he enjoys. If it proves inſufficient for his Support, it muſt be owing to his Indolence in its Cultivation, or improper Labour, or requiring

* Si qua ſuperſunt
A patribus nemora ad ſeros tranſmiſſa nepotes,
Illa nec æſtivo frondent impervia Soli;
Nobile nec Cœlo caput abdunt, qualia quondam
Vulgus adorabat truncis procera verendis:
Sed veteri de ſtirpe, novo ſurgentia ramo,
Et quatuor poſt luſtra nigros viſura Caminos;
Vix Lepori Hoſpitium præbent, &c. &c.
Jac. Vanierii Prædium Ruſticum, 95.

requiring Productions which are by no means adapted to the Soil he poſſeſſes.

Nec vero terræ ferre omnes omnia poſſunt.
Fluminibus ſalices; Craſſiſque paludibus alni
Naſcuntur; ſteriles ſaxoſis montibus orni;
Littora myrtetis lætiſſima: Denique apertos
Bacchus amat Colles, aquilonem & frigora taxi.
VIRG. 2 *Geor.*

Nor can all Soils bear all Things; Willows grow
Near Rivers; Alders in the marſhy Lakes;
Barren wild Aſhes on the rocky Hills, *&c.*

I know ſeveral Acres of Land not worth Six-pence an Acre, which would very well agree with Oak-Trees.

Mr. *Bradley* has made a Calculation of the Expence and Profits of an Acre of Ground, when made into a Wood. Pleaſe to take his Calculation as follows:

" An Acre of Ground contains 160 ſquare " Perches or Rods, each Rod being 16 Feet " and a half. This Quantity of Land muſt " be fenced about with a Ditch, ſix Feet " wide; three Rows of Quickſets planted " upon the Sides of its Banks at a Foot " Diſtance from each other, and a dry " Hedge on the Top. A labouring Man " working for one Shilling *per Diem*, may " prepare nine Feet of the Ditch in Length " in one Day, and cut Stakes and Buſhes, " and make about five Rods of the dry " Hedge in a Day; ſo that he may prepare

" the Hedge, make the Ditch, plant three " Rows of Quickſets, and pay the Expence " of them after the Rate of two Shillings " *per* Hundred, for about three Shillings " the Perch; the whole Charge of making " the Fence about an Acre of Ground will " be Seven Pounds Sixteen Shillings.

" Two Acres of Land may be fenced at " the ſame Rate, being 32 Perches long, " and ten Perches wide, for Nine Pounds " Six Shillings; for the ſame Reaſon, that " if one hundred Hurdles will hold a thou- " ſand Sheep, two Hurdles added to them " will fold two thouſand Sheep; that is, if " the Sheep Pen has 49 Hurdles on each " Side, and one at each End, it juſt con- " tains half the Quantity of Ground that it " would do, if it had the Breadth of two " Hurdles at the Ends.

N. B. A Pole or Perch planted with three Rows of Quickſets, will take up about 48 Plants; ſo there will be required to plant about an Acre 2496 Plants.

" Thus having provided a good Fence to " defend your young Plantation from Dan- " gers of Cattle, and other Inconveniencies, " the next Thing to be done is to prepare " the incloſed Land for Planting, which " may be performed ſeveral ways.

" Suppoſing the Land to be encumbered " in the worſt manner with Buſhes, Whins " or Furze, ſo that a Plough cannot be uſed

" upon

" upon it; then may it be dug and cleanſed " for about Six-pence the ſquare Perch; the " whole Acre, if dug at that Rate, will " come to Four Pounds; but if the Ground " ſhould happen to be in that State, that a " Plough can work in it, an Acre may be " plowed for about twelve Shillings.

" The Land being thus prepared, one A- " cre will contain 40 Plants of Oak at 33 " Feet Diſtance; I ſhall therefore recom- " mend, that 40 good Beds of natural Soil " be prepared on the Acre of Land at the " aforeſaid Diſtance of 33 Feet from each " other; and that in each Bed five or ſix " Acorns be planted in *February*, about four " Inches deep, which Seaſon I chuſe rather " than Autumn, becauſe the over-wet of " ſome Winters might rot the Seed; or " Mice, Squirrels, and ſuch-like Animals, " might deſtroy 'em. Theſe 40 Beds may " be well prepared by one Man in three " Days, at one Shilling *per Diem*; two hun- " dred Acorns may be worth about Six-pence, " and the Planting them worth about Six- " pence more, which makes in all about 4*s.*

" The Acre of Land being thus ſown " with Oaks, we may interſow the remain- " ing Part of the Ground with Aſh-keys; " which have been kept the Winter in dry " Sand. Theſe will turn to very good Ac- " count for Underwood, and the Land is " already dug or plowed for our Purpoſe.

" One

" One Buſhel of Aſh-keys may be worth " two Shillings, the ſowing them one Shil- " ling, and the harrowing the Ground after " ſowing will be worth five Shillings more, " in all eight Shillings. When the Oak and " Aſh are come up, they muſt be houghed " and cleanſed from Weeds. One Man may " do this Work in three Days, leaving the " Diſtance of three Feet between the Aſhen " Plants; the Expence of this weeding will " be three Shillings; for, I rate a Man's " Work at one Shilling *per Diem*, becauſe " I ſuppoſe ſuch Plantations will be made in " thoſe Places where Land is cheap, and " conſequently every Thing elſe is valuable " in Proportion.

" The ſecond Year we may draw ſome of " the young Oaks, leaving a ſingle Plant in " each Bed; now it is likely that all the " Acorns which were put into the Ground, " may not come up, therefore I would ad- " viſe, as the ſureſt Way to have our Ex- " pectations anſwered from the Seeds we " ſow, to try the Goodneſs of them, before " they are ſown, which may be done by " putting them in Water, and planting only " thoſe which ſink quickly to the Bottom.

" An Acre of Land thus fenced, dug, " cleanſed and planted, comes to twelve " Pounds and eleven Shillings; and two " Acres dreſſed and planted in like manner, " will coſt eighteen Pounds and ſixteen " Shillings.

" But

" But if the Land be clean enough to admit the Plough, then the Charge of fencing, planting, *&c.* of one Acre will be nine Pounds three Shillings; and the Expence of two Acres dreſſed in the ſame manner, twelve Pounds.

" In nine Years after this Plantation has been made, the Aſh-Plants will be fit to cut for Poles or Hoops, worth upon the Place ten Shillings *per* Hundred: If the Plants ſtand at a Yard Diſtance from each other, the Acre of Land will then contain about 4800 Plants, which may be ſold for twenty-four Pounds.

" The Quickſet Fence muſt be likewiſe cut down, and will yield about ten Loads of Buſhes; we will ſuppoſe them only worth five Shillings *per* Load, altho' near *London* they ſell for four times as much.

" The whole Charge of fencing, digging, planting an Acre of Ground with Oaks for Timber, and Aſh for Under-wood, with the Profit of the firſt nine Years Growth, may be ſeen in the following Account."

Account

Account of nine Years after Planting or first Cutting.

	l.	*s.*	*d.*
Expence of fencing, digging and sowing an Acre of Land for Timber, and Underwood.	12	11	0
Intereſt of the aforeſaid Sum for nine Years, at five *per Cent.*	05	12	0
Rent of the Land for nine Years, at five Shillings *per* Acre *per Annum.*	02	05	0
For cutting 4800 Aſhen Poles, one Man five Days, at one Shilling *per Diem.*	0	05	0
Nine Years Expence,	20	13	6

	l.	*s.*	*d.*
Received for 4800 Aſhen Poles, at ten Shillings *per* Hundred.	24	0	0
Received more for ten Load of Buſhes, at five Shillings *per* Load.	02	10	0
Nine Years Gain. -	26	10	0
Nine Years Expence	20	13	6
Neat Profit of the Plantation in nine Years.	05	16	6

" After this Cutting we may cut again in eight Years Time, " and expect 4 or 5 Poles on each Aſhen Plant."

Account of ſeventeen Years after Planting, or ſecond Cutting.

	l.	*s.*	*d.*
Rent of the Land for eight Years, at five Shillings *per Annum.*	02	0	0
Expence of cutting 19200 Aſhen Poles, one Man 20 Days, at one Shilling *per Diem.*	10	0	0
Seventeen Years Expence.	03	0	0

	l.	*s.*	*d.*
Received for 19200 Aſhen Poles, at 10 Shil. per Hund.	96	0	0
Received more for ten Load of Buſhes, at 5 *s. per* Load.	2	10	0
Gained clear of Expences by the firſt Cutting.	5	16	6
The Intereſt which might be gained on 5 *l.* in eight Years.	2	06	0
Seventeen Years Gain	106	12	6
Seventeen Years Expence	03	0	0
Neat Profit of the Plantation in ſeventeen Years	103	12	6

Account of twenty-five Years after Planting, or third Cutting.

	l.	*s.*	*d.*		*l.*	*s.*	*d.*
Rent for eight Years, at 5 *s. per* Acre *per Annum.*	2	0	0	Received for 19200 Aſhen Poles at 10 *s. per* Hundred.	96	0	0
Expence of cutting 19200 Aſhen Poles, one Man 20 Days, at 1 *s. per Diem.*	1	0	0	Received more for ten Loads of Buſhes, at 5 *s. per* Load.	02	10	0
25 Years Expence —	3	0	0	Gained clear of Expences by the ſecond cutting.	103	12	6
				The Intereſt which might be gained on 103 *l.* 12 *s.* 6 *d.* in 8 Years at 5 *per Cent.*	041	8	0
				25 Years Gain —	243	10	6
				25 Years Expence —	003	0	0
				Neat Profit in 25 Years —	240	10	6
				To which may be added the Value of the 40 Oaks, then worth 10 *s. per* Tree, which makes in all	260	10	6

This is Mr. *Bradley*'s Calculation Word for Word, in his *New Improvement of Planting*, Page 65, *&c.*

I believe, whoever tries the Experiment, will find it anſwer as he has mentioned there, and in my Opinion with much leſs Expence. Perhaps the Ground may be already fenced, and require no digging, but plowing; it may be alſo worth no more than one Shil-

ling an Acre, or perhaps not worth ſo much. Labour may be much cheaper than he reckons it to be; eſpecially in the *North* of *England*, and in *Wales*, where a Man is very well ſatisfied for Six or Seven Pence a Day, and finds himſelf too. Theſe and ſeveral other Articles might be much cheaper than Mr. *Bradley* mentions in his Calculation.

Having taken the Liberty to inſert here Mr. *Bradley*'s Method of planting, for the Encouragement of my Reader, I ſhall beg leave to offer ſuch an one, as I have found anſwer very well, by often Experience, of thoſe Trees which are moſt likely to turn out to the Planter's Advantage.

As there will be no Neceſſity to be very prolix on thoſe Trees I ſhall treat of, I will give my Reader the ſhorteſt Method poſſible for propagating each.

The Ground you deſign your Plantation for, ſhould be very well fenced (if not ſo already) which may be done according to Mr. *Bradley*'s Direction; or if you pleaſe, thus; *i. e.*

Make what is generally called a dry Wall of Stone only, without Mortar, and about four Feet high: This Wall will be very ſerviceable to keep out all ſort of Treſpaſs, when Banks often fail; and will alſo keep the Bank from falling, which ought to be ſomething higher than the Wall, within Side the Ground; on the Top of which you ſhould plant a Row of Quick-ſet; a ſecond

cond Row at the Foot of the Bank within the Plantation: Without, a third Row, about a Foot from the Wall: Before the laſt Row make a dead Hedge, to prevent Cattle's browſing the Shoots. This will ſecure the Plantation effectually. Never grudge a a little Expence in fencing, for if Cattle break into your Plantation, and bite off the young leading Shoot, all will be irretrieveably undone. * The Antients were very cautious in this.

White-thorn, Holly, Black-thorn, Willow, Hazel, *&c.* are very proper Quickſets for fencing; the Willow will ſoon grow to be a Fence, from Cuttings.

Let Hedges too be made to fence thy Groves
From Cattle; chiefly when the Leaf is young,
And not inur'd to Suff'ring; beſides Storms,
And the Sun's Heat, the Buffalo and Goats,
And Sheep, and greedy Heifers, hurt thy Vines.
Nor does the Winter, ſtiff with hoary Froſt,
Nor Summer, when it dries and burns the Rocks,
So noxious, as thoſe browzing Stragglers, prove;

* Texenda ſepes etiam, & pecus omne tenendum eſt. Præcipue dum frons tenera, *&c.* *Virg.* 2 *Geor.* 371.

Which, biting, wound the Bark; and in the Scar
Of their hard Teeth the rankling Venom leave.
'Tis for no other Crime an horn'd He-goat *
Sacred to Bacchus, *on each Altar bleeds.*

This being finiſhed, manage the Ground according to its Surface; if over-grown with Buſhes, Furze, *&c.* they ſhould be well digged up, or plowed, that they may be ready for planting, which is to be done in the following manner;

Gather a ſufficient Quantity of Acorns off tall ſtraight thriving Trees; preſerve half of them in Sand 'till the *February* following; the other half you are to ſet thus;

Divide the Ground into ſmall Spots about 40 or 50 Feet Diſtance each from the other, and ſet four or five Acorns in each Spot 8 or 10 Inches apart, about two Inches deep; be ſure to cover them, leſt the Mice, *&c.* find them out, and deſtroy your whole Plantation; which they will not fail to do, if any appear above Ground. †

* In

* ——— et album
Libero caprum. *Hor.* 8 Ode, 3 Lib.

——— Greges procul inde repellens.
J. Vanierii prædium Ruſticum, 96.

† I muſt obſerve here a very wrong Method ſome adviſe, and others take, to ſcatter the Acorns promiſcuouſly, and

* In the intermediate Spaces, ſow Aſh-keys, which are to be cut for Hoops, Poles, *&c.*

This is one way of making a Plantation of Oak and Aſh; but I own I cannot think it the beſt; for the Aſh is very deſtructive to moſt Plants in its Neighbourhood; not only on account of its Juices being noxious to whatever grows near it; but alſo by puſhing out its Roots to ſuch a vaſt Diſtance, it muſt attract a great deal of that Nouriſhment which ought to ſupport the adjacent Tree in its Growth; and this muſt be the Caſe where Aſh keys are ſown ſo near the Acorns.

The Aſh will ſoon out-grow the Oak, as it is of much quicker Growth; and by puſhing out lateral Roots, will, in a great meaſure rob the Oak of its Nouriſhment. Beſides they both require different Soils; the Oak a ſtrong and ſtiff Soil, the Aſh a light one. I think much the better way to make ſeparate Plantations for each.

The Culture of the OAK.

When your Ground is prepared to receive your Seed, make ſmall Spots all over it, about

and only cover them by Plough or Harrow; ſome muſt neceſſarily remain above-ground, which intice Vermin to deſtroy the whole.

* Aſh-keys remain ſometimes 'till the ſecond Spring before they appear.

bout eight Feet Diſtance from each other; ſet in each Spot four or five Acorns freſh gathered, about two or three Inches deep; take care that you leave none uncovered, for the Reaſons before-mentioned. This is done in Autumn. The *February* following, (having preſerved ſome Acorns in Sand as before-adviſed) ſet three or four in each Spot, leſt thoſe ſet in Autumn ſhould by any means fail. The Planter would do well to mark with a little Stick, when he ſets his Acorns in Autumn, where he is to ſet thoſe in Spring, leſt he ſhould injure the firſt Set, or put two in the ſame Hole.

The four or five firſt Years they muſt be carefully weeded, if the Weeds are ſuffered to grow, they will attract much of the Plants Nouriſhment*. When you find the Plants grow ſtrong, and upright, you are then to remove them all but two, from each Spot, tranſplanting them into your Nurſery, three Feet Diſtance from each other, in Rows three Feet apart. You ſhould ſhorten the down-right Tap-root, which will render them ſafer to tranſplant again into Clumps, Hedge-rows, &c.

The two Plants left in the Spot (which ought to have been the moſt promiſing of the whole) may remain there two or three Years,

* Neglectis urenda ſilix innaſcitur agris. HOR.
——— For a neglected Field
Shall for the Fire its Thorns and Thiſtles yield.

Years, by which Time you will ſee which is moſt likely to make the beſt Tree, leaving that to remain for good ; † remove the other as before. You may ſow the Ground between the Spots the firſt and ſecond Year with Peas, Beans, or any ſuch Annuals, but not too near the Acorns.

Some Authors adviſe ſowing Acorns, Keys, *&c.* indiſcriminately with Wheat, Barley, Oats, or other Grain ; a Method which will by no means anſwer. Becauſe, firſt, the Crop of Wheat, or whatever it be, will cauſe your Plants to come up ſo very weak, as ſeldom or never to recover it. Secondly, when you reap or mow your Grain, the Workmen muſt infallibly tread down your Plants, and ruin their Sap-veſſels. It will be Labour loſt, and your Expectation, if you expect any Good, diſappointed.

Of the ASH.

Your Ground being prepared, as before, ſow the Keys as ſoon as ripe ; cover them as well as poſſibly you can ; keep the Ground clear of Weeds. When they appear above-ground, which ſometimes will not be 'till the ſecond Spring after ſowing, they muſt be thinn'd, where you find them too thick, letting the moſt promiſing Plants remain, at the Diſtance of four Feet. In two Years after

† Eruerem male nata.——*J. Vanierii Præd. Ruſt.* 96.

after, remove every other Plant into your Nurſery; ſhorten the Tap-roots (thoſe Roots which ſhoot perpendicularly) never prune the lateral fibres, unleſs bruiſed in taking up; and by no means cut off the leading Shoot of the young Plant.

Now every Plant will be eight Feet apart, which may be left ſo, 'till they grow near as big as your Leg; then cut down every other one, which will put out young Shoots, and be fit for Poles, Hoops, and other Uſes in ſix or ſeven Years Time. So that you will be able to cut from ſuch a Plantation every ſix or ſeven Years, a great many Hoops, Poles, and Fire-wood; and there will remain ſo many Trees for Timber.

It is ſaid, that the Roots of Aſh are equal in Circumference to the Branches. I know it ſtrikes its Roots a prodigious Length from the Body, by which means it ſtands ſecure againſt Storms.

Nec veteres agitantur orni. Hor. ix Ode. l. 1.

Of the ELM.

Some Authors mention incredible Ways of raiſing this Tree; ſome ſay that Chips of this Tree will grow; ſome adviſe ſetting Branches of it; others from Seed. As to the two firſt, I believe them impracticable; and as to the laſt, I could never find any Seed worth gathering on the *Engliſh* Elm;

tho' the Witch Elm bears Seed plentifully; and ſhould be cultivated that way, and the young Plants removed at two Years into the Nurſery. However, if the common Elm bore Seed in the greateſt Plenty, the readieſt way is this;

You muſt procure a Parcel of Elm Trees for Stools. When you have prepared your Ground well, (which ſhould be entirely clear of the Roots of all Weeds) in this Ground you are to tranſplant your Elms at ſix Feet Diſtance, in Autumn; ſtake them, to prevent the Wind from blowing them down; and lay dry Litter, or Fern, not Dung, about their Roots, to prevent the Froſt and Sun from injuring the Roots. †

Let the Tree remain whole for two or three Years; then with a Saw cut off the Trunk within a Foot from the Ground; then prune it ſmooth with a keen Knife. * Cover the Wound with Clay.

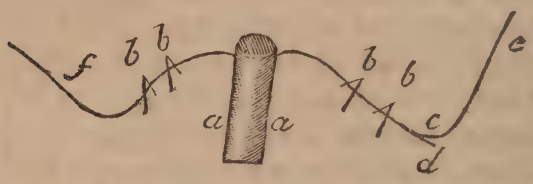
Theſe Stools will puſh out lateral Shoots, which may be laid in the following manner:

Bend the Branch gently towards the Ground (ſome make a Slit in that Part which is put in the Earth) then cover it with half a Foot of Earth, obſerving to leave a Foot or

† Ne Brumâ torpeſcat iners, aut ſole ſitivi
Ardeat.——*J. Vanierii Prædium Ruſticum* p. 109.

*——————ne ferro læde retuſo
Semina——————VIRG. 2 *Geor.* l. 300.
Nor with a blunted Pruner hurt your Shoots.

more (according to the Length of your Layer) of its ſmall End above-ground. If the Weight of Earth will not be ſufficient to keep it under-ground, you muſt faſten it with two or three wooden Pegs. That you may not fail in this Operation, pleaſe to obſerve the Plate.



a a, The Trunk or Stool.

b b b b, The wooden Pegs to fix the Layer down

c, That Part of the Layer under-ground.

d, The Slit.

e, That Part of the Layer above-ground, which afterwards becomes the Tree.

f, Another Layer without a Slit.

If the Seaſon ſhould prove dry, they may be watered now and then, which will cauſe them to take Root the better. When they have taken ſufficient Root (which is generally in a Year's Time) remove them into the Nurſery, about three Feet each from the other: This is beſt done in Autumn; if you cover their Roots, when tranſplanted, with Litter or Haulm, it will be of great ſervice to keep the Froſt from their Roots. The Nurſery you plant them in ſhould be well digged, and clear of all Weeds. The Autumn

tumn following prune off all the lateral Shoots which grow near the Bottom, but never cut any of the Head, especially the leading Shoot. In this Nursery they are to remain, 'till you think fit to remove them where they are to be for good; not forgetting to keep the Ground clear of Weeds, and prune all lateral Shoots, as before directed. This Tree may be transplanted, when very large, if regularly trained up in a Nursery. It should not be planted deep; it is the best Way to raise the Earth about it, and plant shallow; fasten it with Stakes, to prevent the Wind's blowing it down, or shaking it. This Tree seldom thrives, when planted close, as in a Wood, or to make a Grove of it: But in Hedge-rows it does very well, where it can have a free Air from both Sides it; and is very proper for this Purpose, as its Shade is not hurtful to what grows under it, at least, not so much as other Trees.

Some propagate this Tree from Suckers taken from the Roots of old Trees; but this is no good Way, as they are seldom taken up with good Roots.

This Tree likes a hard Loam, neither too moist nor too dry.

Of the BEACH-TREE.

This is raised from its Mast (Seed) sown as soon as ripe; if for large Plantations, ma-

naged as the Oak. If ſown in a Nurſery to remove the Plants, let the Ground be as near as can like to that you intend to remove them to for good (as indeed ought to be the Caſe with all Trees, but eſpecially this) for, if this Tree be raiſed on a good Soil, and afterwards removed into a poor one, they ſeldom thrive; tho' they like a barren Soil, and will thrive admirably well on the Declivities of chalky, cold and barren Hills, if inured to ſuch Places from the Beginning. They thrive too in the fat, rich Valley, and do mighty well in Parks, and near Houſes, as Deer and Swine are very fond of the Maſt. The Leaves of this Tree are of ſuch a beautiful Colour, and afford ſuch a refreſhing Shade, that well might the Paſtoral Poet place his Shepherds under it.*

Of the Wild Black-Cherry-Tree,

This is propagated from the Stones, ſowed in large Plantations, as directed for the Oak, or in a Spot of Ground, in order to remove into the Nurſery. You may ſow one half in Autumn; the other in *February*; be ſure to cover them, for the Mice, *&c.* will deſtroy them, if they ſhould find them out. When they come up, weed them; the ſecond Year they may be removed into the Nurſery,

* Sub tegmine fagi, VIRG. I.
Beneath the Covert of a ſpreading Beach.

Nurſery, at three Feet Diſtance every Way; when you think them big enough to remove, tranſplant them where they are to remain: In doing this never lop off the leading Shoot, but you may prune the Roots, and eſpecially the Tap-roots. They do very well in Hedge-rows, about 15 Feet diſtant, where they will bear plentifully: The Fruit will very amply pay the Planter for his Trouble; and the Wood, when cut down, is little inferior either in Goodneſs or Colour to Mahogony. It is a very quick Grower; I know a Place where four of this Tree now grow, which were planted not quite 50 Years ago, that are 30 Inches ſquare. For my part, I do not know the Tree I would ſooner plant than this, unleſs it be the Oak.

Of the CHESNUT.

Both the Horſe and eating Cheſnut are propagated from the Nuts. The eating Cheſnut affords excellent Timber, and has this peculiar Property, that when once ſeaſoned, it never ſwells or ſhrinks. The Wine Veſſels in *Italy* and *Portugal* are made of this Wood. There were, about 130 Years ago, as appears by *Gerrard*'s Hiſtory of Plants, great Woods of Cheſnut in *England*, particularly within a Mile of *Feverſham*, in *Kent*.

This

This Tree (the Chesnut) says the ingenious Mr. *Miller*, was in greater Plenty amongst us than at present, as may be proved by the old Buildings in *London*, which were for the most Part of this Timber. In *Fitz-Stephen*'s Description of *London*, written in *Henry the Second*'s Time, about 600 Years ago, he speaks of a very noble Forest of Chesnut, which grew on the North-Part of it. The Wood of this Tree is durable beyond the Oak. You may be provided with the Nuts every Year at the Fruiterer's in *London*, who have them from *Portugal*; but as they will not keep long out of the Husks, I think it best to set those you gather off Trees growing here with us, then you will be sure to have them fresh: But if the last cannot be easily had, the first may; and should be put into Water, that you may guess at their Goodness by their Weight; those that sink immediately, you may set; those that swim, throw away, as good for nothing. Though sometimes those that are the weightiest, and sink the most readily, miscarry; for when they are kept too long, they lose their vegetative Quality, notwithstanding they appear firm and ponderous. Set the Nuts in Rows, about six Inches apart, and a Foot Row from Row; keep the Ground clear of Weeds. When you remove them from the Nursery Beds, which may be in three Years after setting, cut off the down-right Tap-

roots,

roots, which will cauſe them to ſtrike out lateral Fibres, and which will make them leſs ſubject to miſcarry, when removed for good. This is the beſt Way where you intend them for Avenues, or Clumps, or Wilderneſs; but for Timber-Trees, ſet the Nuts where they are to remain, and manage them according to Mr. *Miller*'s Direction, which pleaſe to take in his own Words, as the very beſt manner of raiſing this Tree:

" Having fenced your Ground well, " and plowed it to a fine Filth, make Furrows ſix Feet Diſtance from each other, " in which you ſhould lay the Nuts about " ten Inches apart, covering them with " Earth, about three Inches thick; and " when they come up, clear them from " Weeds. When theſe have remained " three or four Years, you will have many " of theſe Trees to remove, which ſhould " be done at the Seaſon before directed (in " *October* or *February*) leaving the Trees " about three Feet Diſtance in the Rows; " at which Diſtance, they may remain for " two or three Years more, when you ſhould " remove every other Tree, to make Room " for the remaining, which will reduce the " whole Plantation to ſix Feet ſquare: Then " cut down every other Tree (making choice " of the leaſt promiſing) within a Foot of " the Ground, in order to make Stools for

" Poles, Hoops, *&c.* which in ſeven Years " Time will be ſtrong enough to lop for " thoſe Uſes; for which Purpoſes they are " preferable to moſt other Trees; ſo that " every ſeventh Year here will be a freſh " Crop, which will pay the Rent of the " Ground, and all other incumbent charges, " and at the ſame time a full Crop of grow- " ing Timber left upon the Ground: But " as the large Trees increaſe in Bulk, ſo " their Diſtance of twelve Feet ſquare will " be too ſmall; therefore when they have " grown to a Size for ſmall Boards, you " ſhould fell every other Tree, which will " reduce them to twenty-four Feet ſquare; " which is a proper Diſtance for them to re- " main for good: This will give Air to the " Under-wood (which by this time would " be too much over-hung by the Cloſeneſs " of the large Trees) by which means that " will be greatly encouraged, and the ſmall " Timber felled will pay ſufficient Intereſt " for the Money at firſt laid out in planting, " *&c.* with the Principal alſo; ſo that all " the remaining Trees are clear profit; for " the Under-wood ſtill continuing, will " pay the Rent of the Ground, and all o- " ther Expences; and what a fine Eſtate " here will be for a ſucceeding Generation " in about fourſcore Years, I leave every " one to judge."

Of

Of the SYCAMORE.

This Tree is a very quick Grower, and in great Eſteem with the Turner and Muſical-Inſtrument-maker. It is raiſed as the Aſh, by ſowing the Keys. This Tree reſiſts the * *Spray* the beſt of any Tree. I have ſeen other Trees near the Sea appear as if they had been ſhorn, occaſioned by the *Spray*. The Sycamore is very proper to ſhelter Plantations from the Sea; an Inſtance of which may be ſeen at *Margam*, in *Glamorganſhire*, a delightful Seat, lately belonging to the ancient Family of *Manſel*; now to the worthy and Rev. Mr. *Talbot*, of the Houſe of *Lacock*, in *Wiltſhire*. Theſe Trees keep off the *Spray* from one of the fineſt Orangeries, perhaps, in *Europe*: Here are Orange, Citron, Lime, and Limon Trees of prodigious Bigneſs, ſome of which meaſure twenty eight Inches in Girt, about half a Foot from the Ground, The Branches ſpread about eighteen Feet Diameter; are about twenty Feet high. They never have the leaſt artificial Heat: They are about a Mile from the Sea; defended from the North by a large ſlanting Wood and Hill; from the Weſt by a Grove; from the Eaſt by the Building. This Place is perhaps one of the hotteſt in *England*, owing to the Reflexibility of the

F rocky

* *Spray* is a watery Miſt, like a ſmall Rain, ariſing from the Sea.

rocky Hills above, on which the Sun's Rays are reflected, and falling almoſt perpendicularly on the Banks of Sand, which are near, are refracted back again. This Tree thrives in moſt Soils.

Of the WALNUT.

The Walnut, by ſetting the Nuts in Rows, about ſix or eight Inches apart, and removed into the Nurſery three Feet apart. As this Tree will neither bear pruning nor removing very well, it will be the beſt Way to ſet the Nuts where they are to remain. Preſerve the Nuts in their green Huſks. It loves a marly Soil.

Of the POPLAR.

There are ſeveral Kinds of this Tree, as the white, the Abele, the trembling Poplar, or Aſpen. All are propagated by Cuttings, or large ſtrait Boughs; plant them in *February*, thruſting them into the Ground, having made a Hole for them with an Iron-Bar, leſt the Bark ſhould be torn off or bruiſed in puſhing them into the Earth. In a moiſt Soil they will readily take Root, and ſoon be large Trees. This Tree is very proper where you require Shelter in a ſhort time. It is ſaid they grow twenty Feet in a Seaſon. There can be no greater Advantage made of Bogs than planting them with this Tree, which in a few years will grow to be

fit

fit for Boards for wainſcoting, Turnery-ware, for Hop-Poles, and Fire-wood.

Of the Willow, Withy, *and* Sally.

Theſe are all propagated in the ſame Way as the Poplar; they love a moiſt Soil, †

Of the LIME-TREE.

This Tree is raiſed as the Elm, by Layers; the beſt Time is about *Michaelmas:* In one Year's Time they will take Root; remove them into your Nurſery three Feet diſtant in Rows, each Row about ſix Feet apart. Sir *Thomas Brown*, ſays Mr. *Miller*, mentions one of theſe Trees which grew in *Norfolk*, that was ſixteen Yards in Circuit, a Foot and a half above Ground; in Height thirty Yards, and in the leaſt Part of the Trunk it was eight Yards and an half.

Of the FIR-TREE.

All kinds of Fir, Pine, Cedar, and Cyprus are raiſed from the Seed; you ſhould, if poſſible, get the Cones, and by ſoaking them in Water all Night, the Seed will come out. If for Timber, ſow the Seed in Patches, where they are to remain, each Patch about ten Feet Diſtance. The Earth ſhould be plowed or digged to a fine Filth,

† Fluminibus gaudent ſalices, et populus alba.
J. Vanierii Præd. Ruſt. 98.

free from Weeds and large Stones; cover the Seeds about half an Inch, or ſomething leſs; over which lay Peaſe-haulm, or Furze; this is to keep off the Birds, which will be very apt to fall on the Seed-huſk, as they appear on the Top of the ſeminal Leaves, and will peck and injure the young Plants. Furze is beſt, where it can be had. Beſides, this Covering, if not too cloſe, will keep the Sun from ſcorching the Plants. Draw a little Earth to them, as they grow up, which will greatly ſtrengthen them. Thin them, as you ſee occaſion, and remove thoſe you take up into your Nurſery, planting them three Feet every way apart. Take up as much earth with them as you can, without injuring the remaining Plants; never cut the Roots or Branches; give them a gentle watering, to ſettle the Earth to their Roots. You ſhould take care to thin the Plants in the Patches, till you take all away but one (the moſt promiſing) in every Patch. They will require no further Care than keeping them clear of Weeds, and out of Cattle's way. The *Scots* Pine loves a chalky Soil, and will thrive on Hills, tho' ever ſo cold. The Spruce requires a ſtiff, ſtrong Soil, for in ſuch they thrive in *Norway* and *Sweden*.

Of the CEDAR.

The Cedar of *Lebanon* might be cultivated to very great advantage, as no Hill can be too bleak

bleak or cold for it. It is raiſed as the Pine, from Seed; the Seed are never the worſe for being five or ſix Years old, if kept in the Cones. You ſhould ſow the Seed in Boxes, that you may have the Conveniency of removing them to the Shade in Summer, which they much require. The leading Shoot ſhould at firſt be guided with a Stick, for they are apt to incline. The ſooner the better you remove them out of the Boxes; that is, after the ſecond Year. Never lop this Tree. You find in the firſt Book of *Kings*, what a vaſt Quantity of this Cedar grew on Mount *Lebanon*, in *Solomon*'s Time. Now I think Travellers * ſay, they are reduced to a very few.

Having given my Readers theſe ſhort Directions to raiſe the moſt profitable Timber, I ſhall beg leave to add a few Rules for Planting, which, if carefully obſerved, will be found by Experience to anſwer very well.

RULE I.

Plow and harrow your Ground well, to clear it from all noxious Weeds and Roots; and beſides, by often plowing and digging, you † crumble the Earth, and by that means the

* Rauwolf *and* Maundrel's *Travels.*

† Optima putri
Arva ſolo. —— VIRG. 2 Georg. 261.

Vomere procindens ter vel quater arva.
—*Vanierii Præd. Ruſt.* 96.

the ſulphurous aereal Particles mix with it, which will be Melioration enough, Dung being prejudicial to moſt Trees.

II.

Never ſift your Earth, becauſe when it is ſo very fine, the Particles will unite ſo cloſely, as to endanger rotting the Roots, when Rain falls; and will alſo prevent the Air from penetrating to their Roots. Air is abſolutely neceſſary towards promoting vegetable life, as is ſufficiently proved by that learned and worthy Divine, Dr. *Hales*, in his excellent Book of vegetable Staticks, Page 148, where he ſays, "by the Experiment on Vines (chap. "3. of the ſame Book) we ſaw the very "great Quantity of Air, which was con-"tinually aſcending from the Vines, thro' "the Sap in the Tubes; which manifeſtly "ſhews what Plenty of it is taken in by "the Vegetables, and is perſpired off with "the Sap through the Leaves."

III.

Your Nurſery, in which you intend to train your young Plants for removing, ought to be very well digged, and free from all Weeds; and ſuch a Soil and Situation as is moſt like to that you deſign your Trees ſhould be tranſplanted to for good. For, if your Trees are taken from a good Soil to a

ſteril one, from a deep to a ſhallow, from a ſtiff to a light, *&c.* they will ſeldom thrive.

IV.

* Set the largeſt growing Trees by themſelves, not too near thoſe of a humbler Growth; becauſe the large growing Trees will over-ſhadow the ſmaller, and be continually dropping on them, which will ſtint them intirely in their Growth.

V.

When you tranſplant a Tree, let the Ground you remove it to be prepared before you take it up. Plant it as ſoon as poſſible; for the Wind will dry the Fibres of the Roots; or the Wet, if expoſed to it, moulder and rot them, when kept too long out of the Ground.

VI.

If your Trees have been any Time out of the Earth, and the Roots grown dry, it will be proper to ſoak them in Water for 24 Hours. I had five hundred Beach Trees, which were ſix Weeks from the Time they were taken up to the Time I planted them, expoſed to the Weather; I ſoaked them in Soap-ſudds for one Day and Night; they all growed but one. I cut off the Tap-roots and ſmall Fibres.

VII. If

*——Nunquam ſe parva nigris in ſaltibus arbor
Tollit humo grandes inter, *&c.*—*Varierii Præd. Ruſt.* 96.

VII.

If a Tree is tranſplanted as ſoon as it is taken up, you ſhould be very ſparing in pruning either the Roots or Branches; only cutting off thoſe that croſs each other, or the down-right Tap-roots, and thoſe that are bruiſed. Above all never lop the leading Shoot.

VIII.

When Trees have been long out of the Ground, you ſhould prune off all the capillary Fibres cloſe to the Place they ſhoot from, for if left on they will rot, and endanger the whole Tree.

IX.

As there are a great many People, who pretend to great Knowledge in Planting, pronounce with a deciſive Air, "Thoſe "Trees will never grow which have their "Branches intire; becauſe, ſay theſe ſuper-"ficial Examiners, this Tree with ſo many "Branches will rob the Roots of their Nou-"riſhment." How far this is right I will leave my Readers to gueſs by the following Experiment of that ingenious Writer, Mr. *Miller*, in his firſt Vol. of the *Gardener's Dictionary*. "I, (ſays this experienced "Gentleman) in the Month of *Oct.* 1723, "made Choice of two Standard Almond "Trees, of equal Strength and Age. Theſe "I took up as carefully as poſſible, and hav-

"ing

" ing prepared their Roots, (that is, cut out " all Roots that were bruiſed, and croſſed " each other, and the Tap-root) I pruned " their Heads in the following manner, *viz.* " of one of them I only cut off the ſmall " Branches, and ſuch as were bruiſed or " broken, but preſerved all the ſtrong " Branches intire. Of the other I ſhortened " all the ſtrong Branches, and pruned off " all the weak and broken Shoots, as is the " common Practice.

" Theſe two Trees I planted in the ſame " Soil, and to the ſame Situation, gave them " both equal Attendance, and managed " them both as nearly alike as poſſible; yet " in the Spring, when theſe Trees began to " ſhoot, *That*, whoſe Branches *were intirely* " preſerved, came out early, continued to " ſhoot out ſtronger, and is at preſent much " larger, aud in better Health than the o- " ther. And ſince this, I have made ſeve- " ral other Experiments of the like Nature, " which have conſtantly ſucceeded in the " ſame Manner; from whence it is reaſon- " able to conclude, that the ſhortening of " the Branches is a great Injury to all new- " planted Trees. †

X.

It is plain from the Experiment in Rule IX. that Leaves and Branches are neceſſary

G to

† This is further proved in the Memoirs of M. le *Normand*. *Stultum eſt amittere radices quas habemus; ut acquiramus novas.* THEOPH.

to attract the Sap from the Roots (and not rob the Roots of their Nourishment, for the Support of the Tree. To prove this further, please to take an Experiment of the good Dr. *Hales*, who cut off several Branches of Apple Trees, Pear, Cherry, and Apricot Trees, two of a Sort. They were of several Sizes, from three to six Feet long, with proportional lateral Branches; and the transverse Cut of the largest Part of their Stems was about an Inch Diameter.

He stripped the Leaves off of one Bough of each Sort, and then set their Stems in separate Glasses, pouring in known Quantities of Water. The Boughs with Leaves on them imbibed some 15 Ounces, some 20, 25, or 30 Ounces in 12 Hours Day, more or less, in Proportion to the Quantity of Leaves they had; and when weighed, they were lighter at Night than in the Morning, they having perspired little.

XI.

Nothing can be much more prejudicial to Trees, than lopping them; for Wounds in Trees imbibe Moisture very freely; that if there be but a few, or no Branches or Leaves, to perspire it off, it will mix with the Sap, and by distending the Vessels too much, will prevent their Attraction.

XII.

When a Tree is transplanted, give it a good watering, to settle the Earth to the Roots;

Roots; and do ſo every now and then, if the Seaſon ſhould prove dry. But take great Care leſt you give it too much, which has been the Occaſion of deſtroying more new-planted Trees, than many imagine; becauſe by pouring Water continually, as it were, to the Roots of Trees, the Sap-Veſſels become ſo ſaturate, that even the Sap cannot paſs. The Tree can neither perſpire, nor imbibe, as you may be fully ſatisfied by the laſt quoted Experiment of the Reverend Dr. *Hales*, where the Quantity of Water imbib'd by thoſe Branches with Leaves on, decreaſed very much every Day, the Sap-Veſſels being too much ſaturate with Water, to let any more paſs; ſo that uſually in four or five Days Time the Leaves faded and withered.

How much more injurious muſt too much Water prove to new-planted Trees, that have neither Leaves nor Branches, to perſpire it off? Leaves ſerve for Lungs, in which are excretory Ducts to ſeparate and carry off redundant Fluids.

Capillary Veſſels, ſays Dr. *Hales*, cannot protrude Sap, without the Aſſiſtance of Leaves, but they imbibe plentifully.

XIII.

Ever-greens require leſs Water than deciduous Trees, becauſe they perſpire leſs.

XIV.

The Danger of over-watering Trees is greater in Winter than in Summer; when the Weather is cold, than when it is warm. Then the Sap is more condenſed, and the Tree not able to perſpire as freely.

XV.

When your Tree is tranſplanted, ſtake it, that the Wind may have no Power over it,

XVI.

Plant the Tree, as near as may be, the ſame Depth as it grew in before. Obſerve tho', that if the Ground you take it from be dry, and that you remove it to be moiſt, in that Caſe plant ſhallow, and raiſe the Earth over the Roots pretty high. I cannot think any great matter whether the Tree be planted in the ſame Situation it grew in before, that is, whether that Part of it which faced the South, *&c.* be placed to face the South, *&c.* tho' a great many Authors adviſe it as a very neceſſary Point. A * very modern pretty Writer recommends it; perhaps it might be requiſite, I don't pretend to affirm to the contrary, eſpecially in that † Country where the Heat of the Sun is violent, and imbibes from that Part which faces it plentifully; and

* *Vanierii, Præd. Ruſticum.* † *France.*

and may require to ſtand, when tranſplanted, in the ſame Poſition.

XVII.

Cover the Roots with long Litter, Peaſe-haulm, or Fern, to prevent the Froſt, Wind and Sun from penetrating to the Roots.

XVIII.

The Seaſon for tranſplanting deciduous Trees is in *Autumn*, when the Leaves begin to fall, except the Oak, which, according to Mr. *Miller*, ſhould be juſt when it begins to puſh out. I do not remember his Reaſons for it; but I am ſure he had ſufficient ones; and his Reader may ſafely follow his Directions in moſt Things.

Where the Ground is wet, the Spring is the beſt Seaſon, leſt too much Wet in Winter ſhould rot the Roots.

XIX.

Ever-greens are beſt tranſplanted in the latter End of *March*, or Beginning of *April*; for if they are planted in Autumn or Winter, at which Time the Sap moves ſlowly in them, they will be very apt to miſcarry. I have known them do very well, when tranſplanted in *Auguſt*, or the Beginning of *September*.

XX. All

XX.

All coniferous Trees, as the Fir, Pine, Cedar, *&c.* ſhould be raiſed by ſowing the Seed as ſoon as poſſible after the Seeds are taken out of the Cones; (for if theſe Seeds are long out of the Cones, they loſe their vegetative Quality) the Way of getting the Seeds out of the Cones is, in the leſſer Sort, by ſoaking them in Water; in the greater, as the Cedar, by ſlitting them through with a ſharp-pointed Iron.

I am very ſenſible, that this ſhort Treatiſe will fall under the Cenſure of a great many who read an Author more for the ſake of Criticizing, than on account of Inſtruction. However, as I am certain it may be of public and private Advantage, it gives me no great Concern on that Head. I think moſt People will allow, that the Uſe of ſuch a Piece as this is, in being intelligible to every Capacity: And however little the Language may pleaſe ſome, I am convinced (with Submiſſion I ſpeak it) the Practice will ſeldom fail to pleaſe thoſe who try it; and to all that will, I heartily wiſh them Succeſs.

F I N I S.

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